SB614929

ISUZU

Technical Service BULLETIN

IMPORTANT SERVICE INFORMATION FOR:
- ✓ SERVICE MANAGER
- ✓ SERVICE ADVISOR
- ✓ TECHNICIAN
- ✓ PARTS DEPARTMENT
- ✓ WARRANTY PERSONNEL

SB00-01-S009

BULLETIN NUMBER: SB00-01-S009

ISSUE DATE: SEPTEMBER 2000

GROUP: ENGINE

TICKING SOUND FROM HYDRAULIC VALVETRAIN
(Supersedes SB00-01-S002)

NOTE: This service bulletin is being revised to update parts information.

SUV

AFFECTED VEHICLES

Some 1997 and earlier Trooper (UX) and Rodeo (UC) V6 models

SERVICE INFORMATION

Condition:
The above affected vehicles may exhibit a condition of ticking sounds coming from the valvetrain during normal operation.

Possible Cause:
One or more hydraulic lash adjusters do not fully extend due to varnish build-up inside. This condition results from exceeding the required oil and filter change intervals. Severe driving conditions require more frequent oil and filter changes. (Refer to appropriate Owner's Manual or Workshop Manual for details.)

Correction:
A typical repair for the condition may involve the replacement of the affected rocker arm(s), and rocker shaft(s). However, follow the information in this bulletin to perform an oil/filter change using 0W-30 Mobil 1 synthetic engine oil, prior to replacing any valvetrain component.

*NOTE: Although the current recommended engine oil for these engines is **10W-30 API SJ**, the **0W-30** synthetic engine oil allows air in the hydraulic lash adjusters to bleed out quickly and removes the varnish that is preventing hydraulic lash adjuster piston travel.*

SERVICE PROCEDURE

1. Drain the engine oil, replace the oil filter with a Genuine Isuzu oil filter, and refill the crankcase with 0W-30 Mobil 1 synthetic engine oil.

2. With the engine warm, run it at 2,500 rpm for 30 minutes.
   - If the ticking noise goes away, return the vehicle to the customer.
   - If the ticking noise persists, proceed with step 3.

ASE CERTIFIED

14910

3. Let the motor run at idle and use a stethoscope or Steel screwdriver to determine which bank is noisy. Once you have determined the location, turn the key off. (Figure 1)

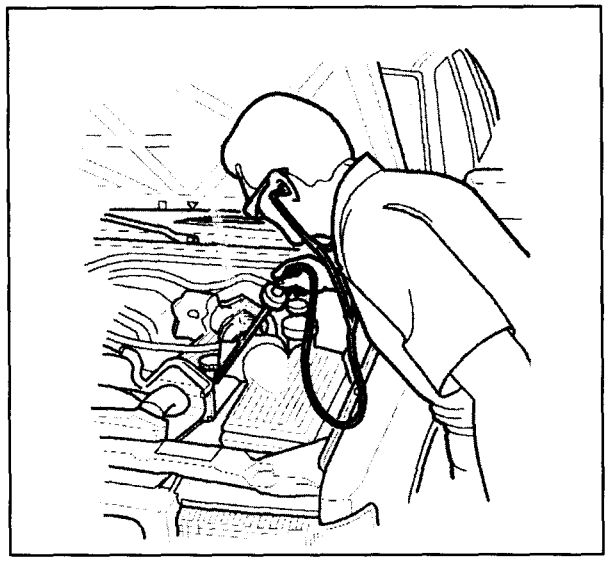

Figure 1: Using stethoscope or Steel Screwdriver, determine which bank is noisy.

4. Remove the cylinder head cover on the noisy bank.

5. Inspect each rocker arm for clearance at the valve (when the rocker is on the base circle of the cam and the valve is closed). The noisy rocker arms are the ones with clearance. (Figure 2)

NOTE: *Each cylinder head has one oil pressure relief valve that controls oil pressure to its rocker arms. If all rocker arms on one cylinder head have clearance and/or the rocker arm pivot shaft is worn, then the cylinder head oil pressure relief valve may be stuck open. In this case, refer to the appropriate Workshop Manual for additional troubleshooting procedures.*

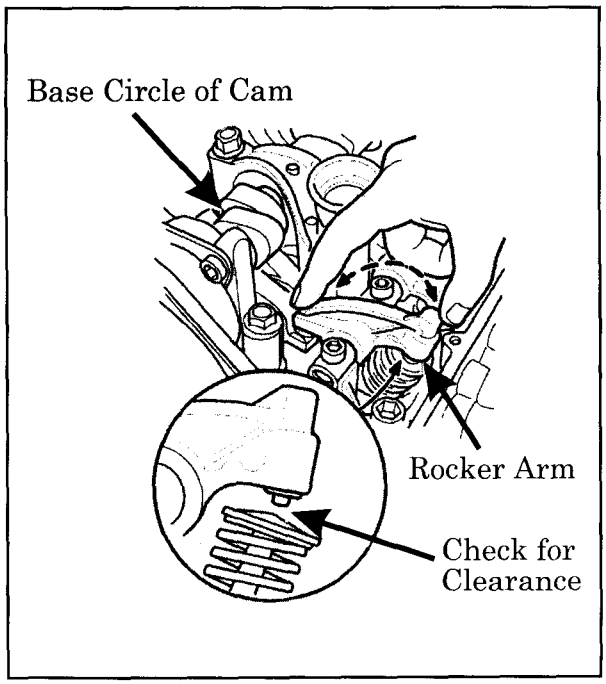

Figure 2: Inspect each rocker arm for clearance at the valve.

6. Remove the ticking rocker arm assembly, and inspect the wear pattern of the hydraulic lash adjuster surface that contacts the valve stem (the intake rocker arm is located under the camshafts, which require timing belt removal).

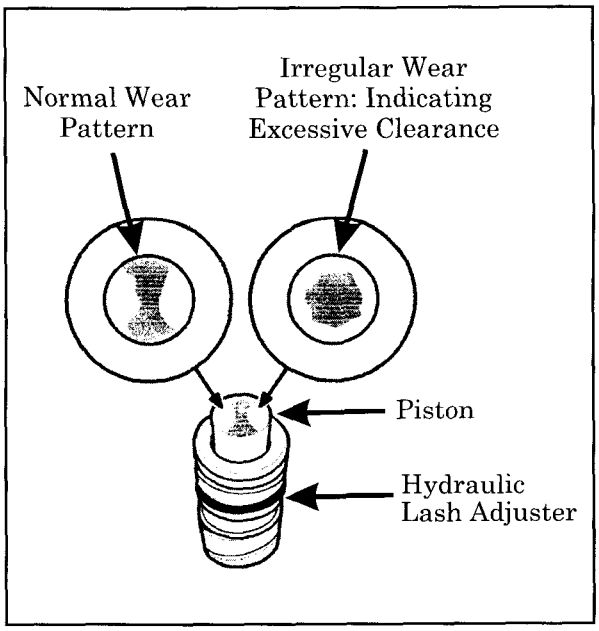

Figure 3: Inspect the Hydraulic Lash Adjuster Surface.

7. Carefully remove the Hydraulic Lash Adjuster(s) from the Rocker Arms using your fingers. (Figure 4)

IMPORTANT: *Do not damage the O-Ring on the outside of the Hydraulic Lash Adjuster, or you will have to replace the entire rocker arm (the Hydraulic Lash Adjuster cannot be ordered separately). When replacing an exhaust rocker arm, replace its intermediate rocker arm too.*

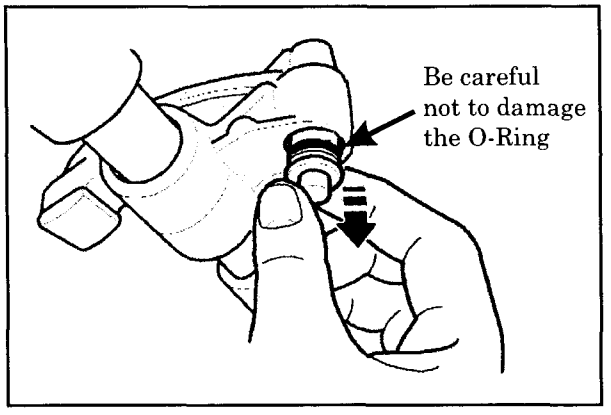

Figure 4: Remove the affected Hydraulic Lash Adjuster.

8. Insert a paper clip into the hole at the top of the Hydraulic Lash Adjuster and depress the spring loaded check ball, while completely pushing in the piston at the opposite end. Some traces of oil may come out of the check ball hole. (Figure 5)

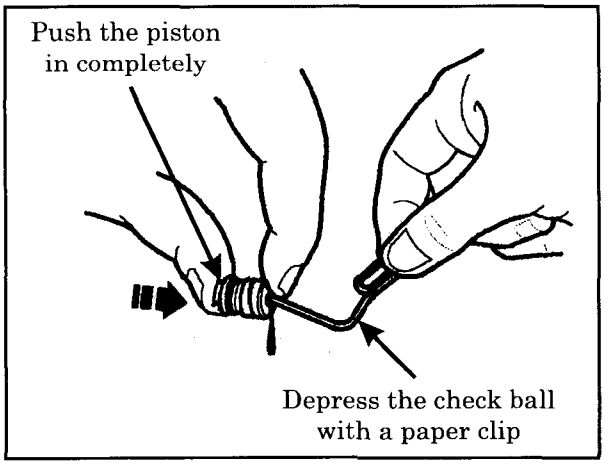

Figure 5: While holding the Hydraulic Lash Adjuster, push the piston in completely and depress the check ball with a paper clip.

9. Carefully remove and retain the Hydraulic Lash Adjuster O-Ring. Spray the Hydraulic Lash Adjuster piston with carburetor cleaner to remove any varnish (while holding the piston in). (Figure 6)

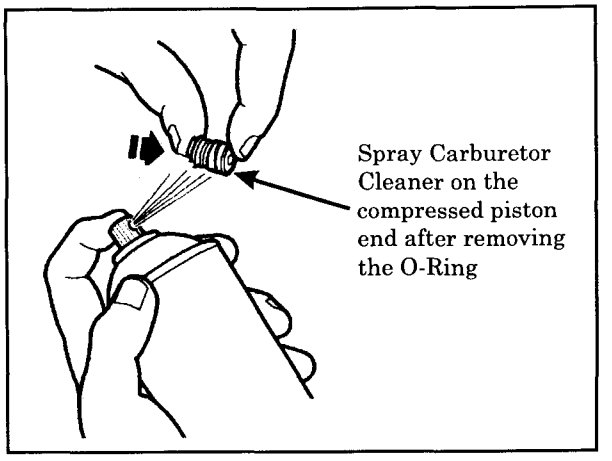

Figure 6: Remove any varnish with Carburetor Cleaner.

10. Submerge the Hydraulic Lash Adjuster in new cleaning solvent; (while depressing the check ball) pump the piston repeatedly to allow the cleaning solvent to penetrate through the Hydraulic Lash Adjuster. (Figure 7)

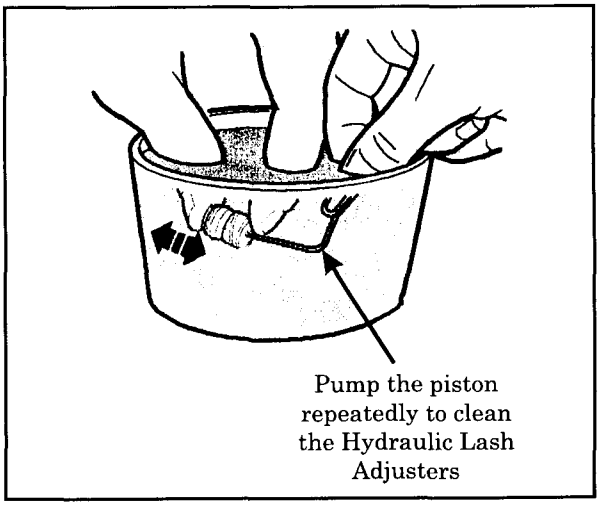

Figure 7: Submerge the Hydraulic Lash Adjuster in New Cleaning Solvent.

K4916

11. Submerge the Hydraulic Lash Adjuster in clean 0W-30 Mobil 1 synthetic engine oil, (while depressing the check ball) pump the piston repeatedly to allow 0W-30 Mobil 1 synthetic engine oil to penetrate through the Hydraulic Lash Adjuster. Then allow the piston to extend fully, to fill the Hydraulic Lash Adjuster with oil.

12. Reinstall the Hydraulic Lash Adjuster O-Ring.

13. Lube the Rocker Arm bore that houses the Hydraulic Lash Adjuster with 0W-30 Mobil 1 synthetic engine oil, then push the Hydraulic Lash Adjuster back into place.

14. Inspect for leaks at the check ball and piston by attempting to compress the Hydraulic Lash Adjuster without depressing the check ball (The Hydraulic Lash Adjuster should not leak or compress).

NOTE: *Oil filled Hydraulic Lash Adjuster will hold its valve off the seat for several crank revolutions. This may cause the engine to run rough for a short period after starting. To prevent this, select one cylinder and bleed some oil off the Hydraulic Lash Adjuster (depress the Check Ball and compress the piston ¼ of the way down). This will allow the valve to close. Do not remove all of the oil or the valves spring and cam will collapse the Hydraulic Lash Adjuster permanently.*

15. Reassemble the engine using new cylinder head cover gasket (see Parts Information) and apply some gasket seal at the corners where the cam tower gasket and cylinder meet. Torque the Cylinder head cover bolts to 8 N.m (69 lb. in) using hand tools only.

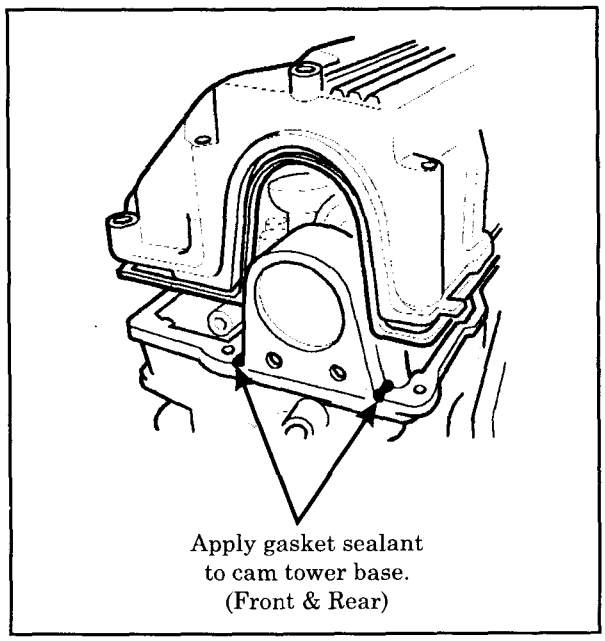

Figure 8: Install the Cylinder Head Cover with new Cylinder Head Cover Gasket & Sealant.

16. Start the engine and listen for noise.

17. Remind the customer, "More frequent oil changes can prevent varnish accumulation." Also recommend to use minimum oil rating of: API Service SG, but SJ is preferred.

PARTS INFORMATION

Part Number	Description	Quantity Required
8-97139-569-0	Gasket; Head to Cover	2
8-97140-666-0	Element; Oil Filter	1
8-94384-311-0	Valve; Oil Relief	*
8-97225-083-0	Exhaust Rocker Arm	*
8-97032-013-1	Exhaust Rocker Arm (Curves left)	*
8-97032-014-1	Exhaust Rocker Arm (Curves right)	*
8-97089-270-2	Intermediate Arm; Inlet Rocker	*

* Replace if part is found to be defective.
NOTE: *Shaded information reflects revisions from the previous service bulletin.*

WARRANTY CLAIM INFORMATION

None: This is not a warranty matter (see POSSIBLE CAUSE).